

UNOLS ships have the capability to obtain high horizontal resolution surface layer information that can ‘weave’ together the data return from the broad array of SPURS water column, Lagrangian and views from space observations, e.g. moorings, gliders, drifters, argo profilers and Aquarius.

SPURS

(subtropical; sept/oct '12)

Underway data

Arnold L.Gordon & Julius Busecke

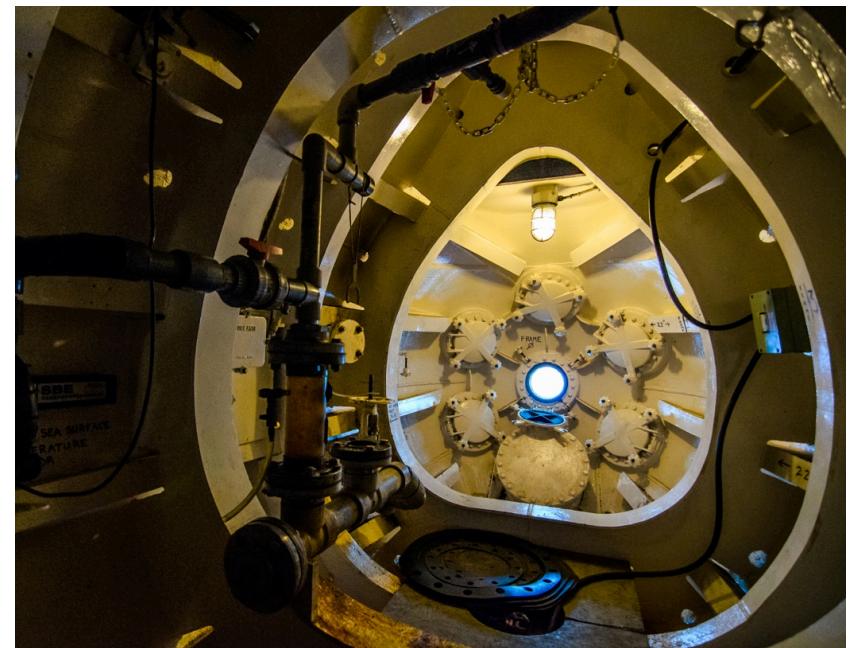
Julius Busecke and Phil Mele participated in
SPURS sept/oct 2012 cruise

R/V Knorr Underway Instrumentation

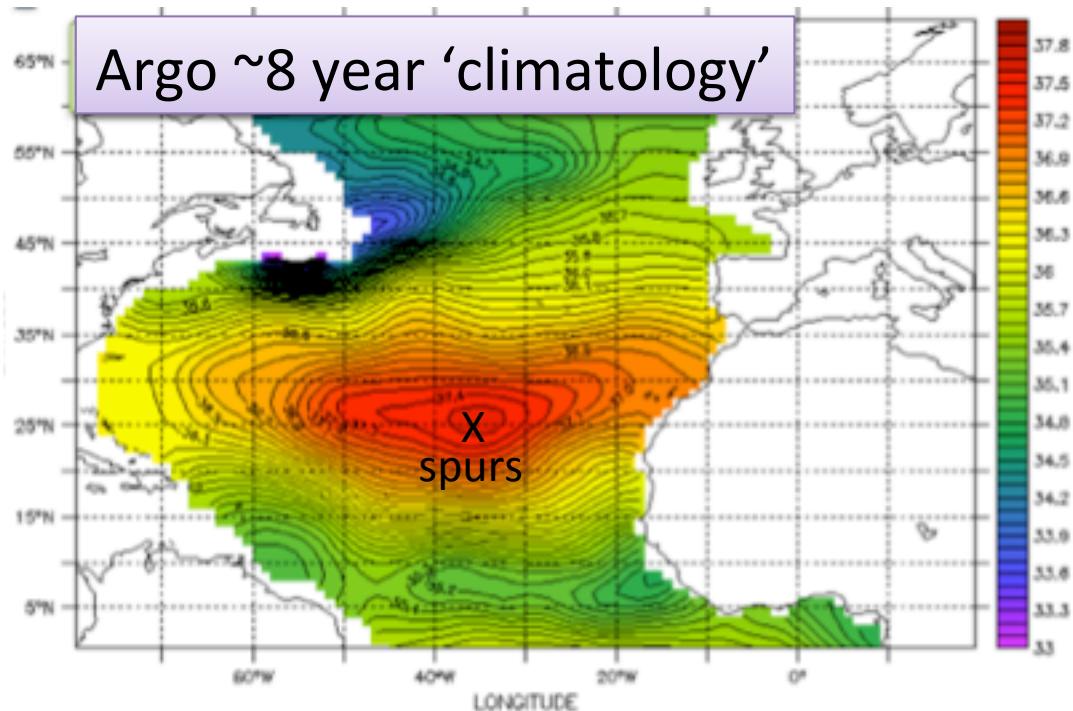
RDI Ocean Surveyor 75 KHz ADCP

RDI WorkHorse Mariner 300 KHz ADCP

Sea surface temperature; Sea surface salinity; Fluorometer;
Wind speed & direction; Air temperature; Barometric
pressure; Relative humidity; Short wave solar radiation;
Precipitation

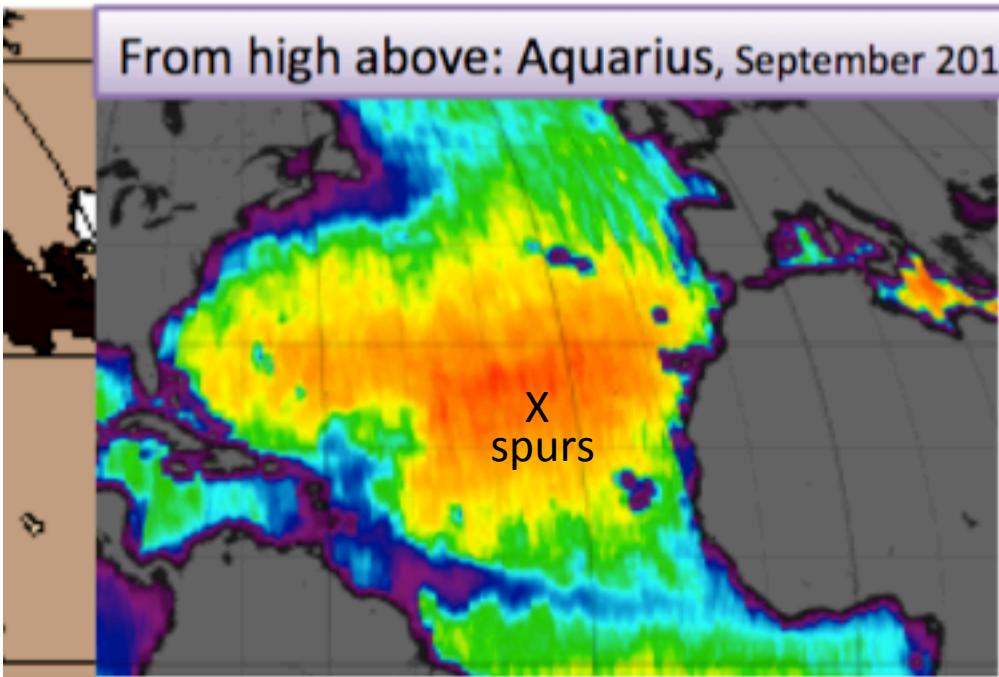


Intake ~5 m

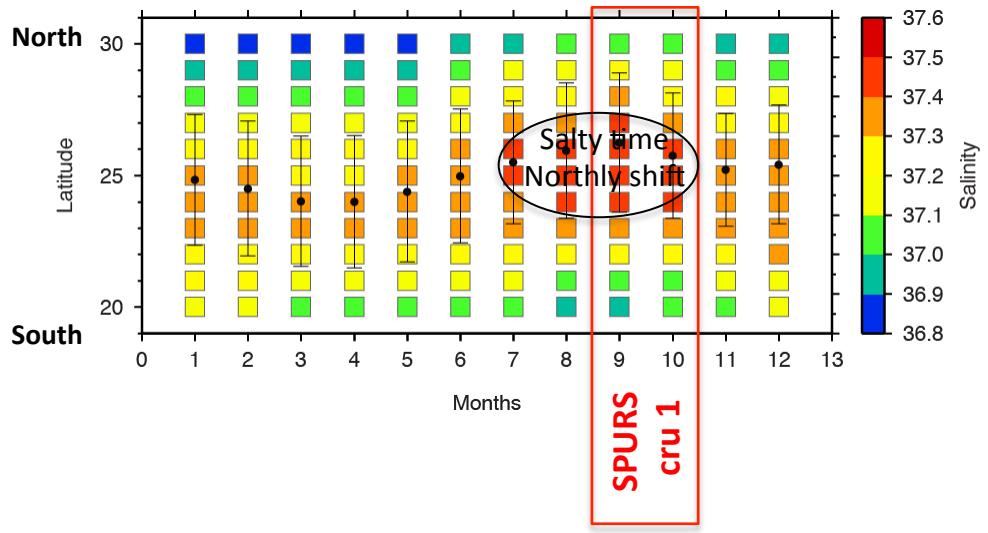
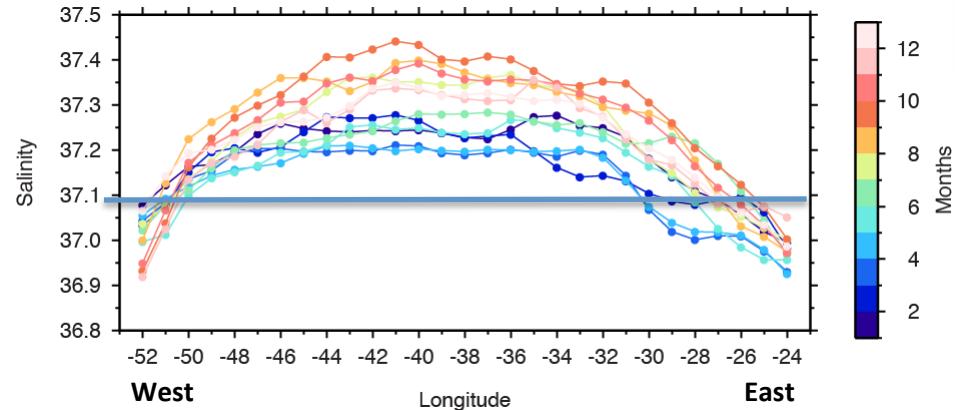
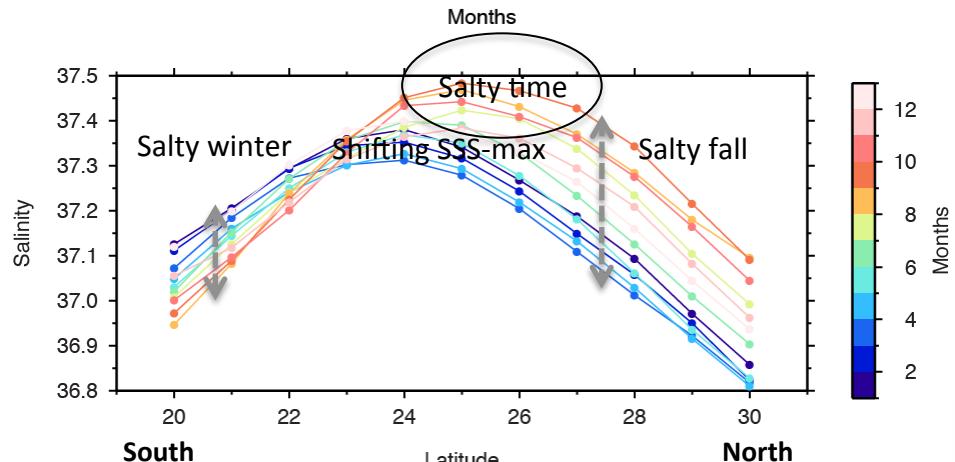
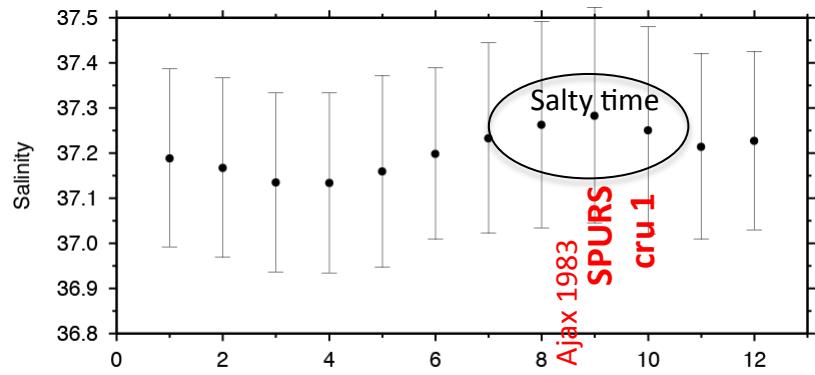


SPURS
at SSS-max center,
there are seasonal
variations

[next slide]



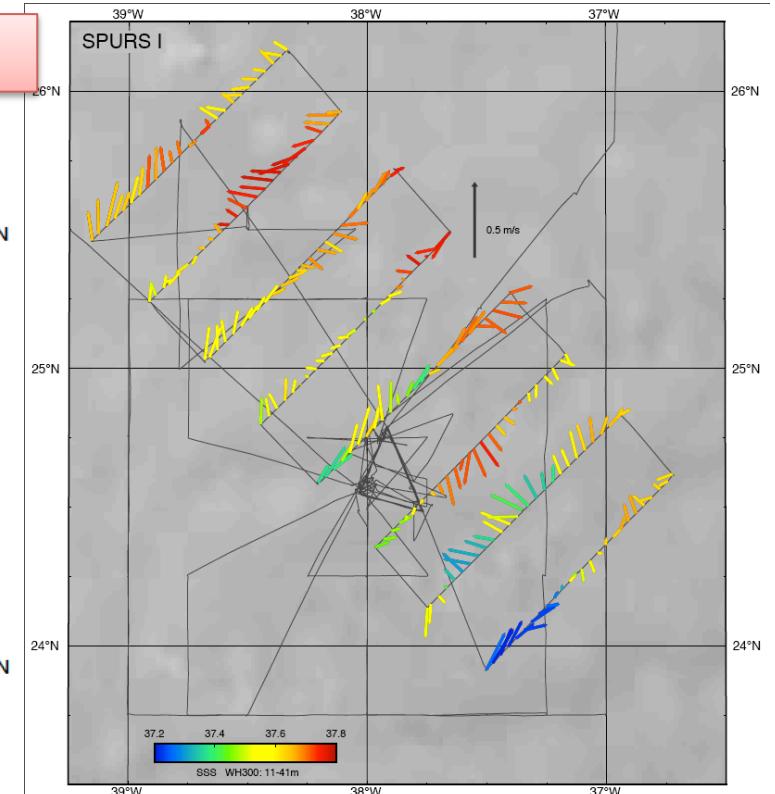
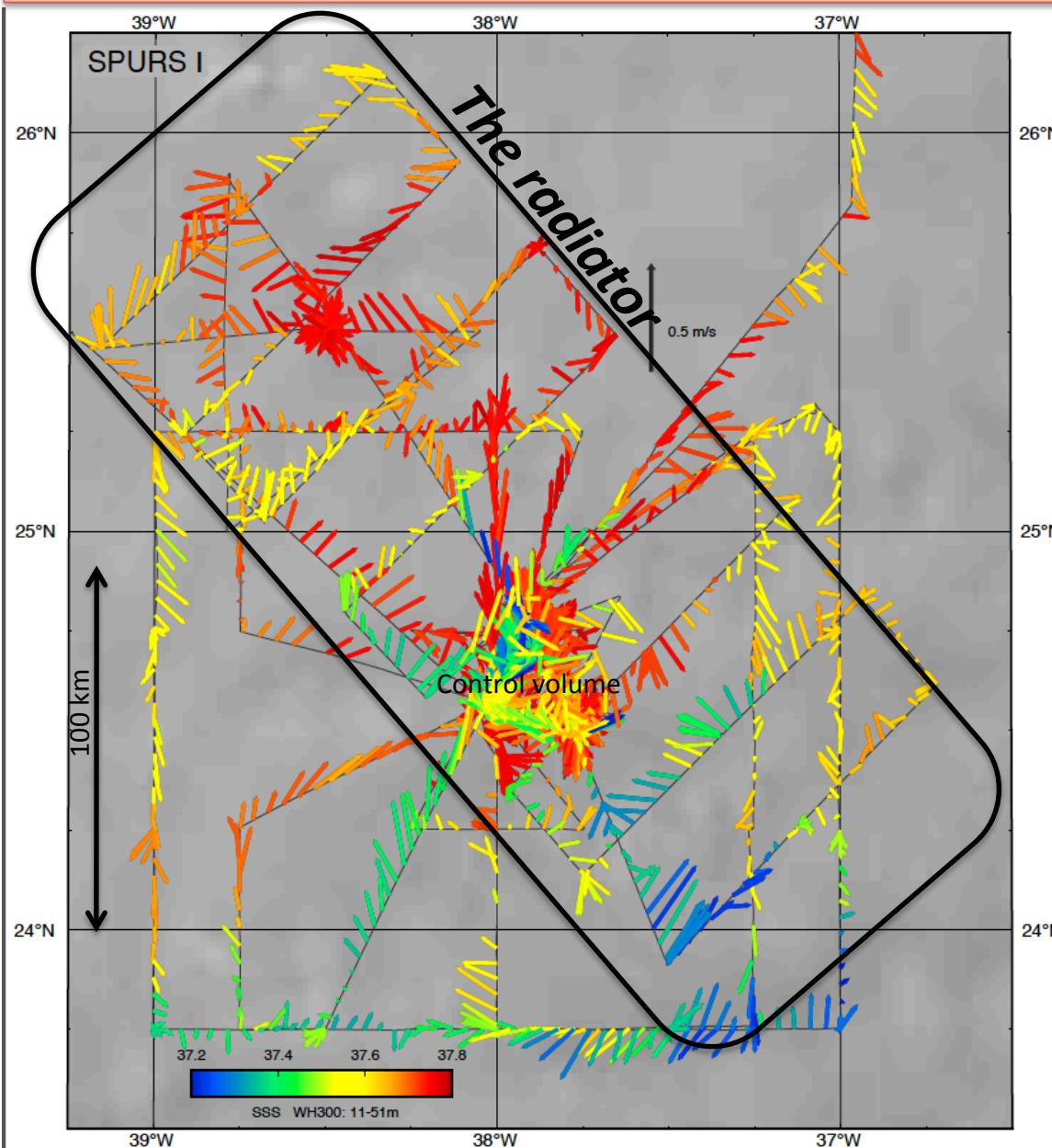
Average of SSS within 20-30N;52-24W (using SSS after objective analysis)



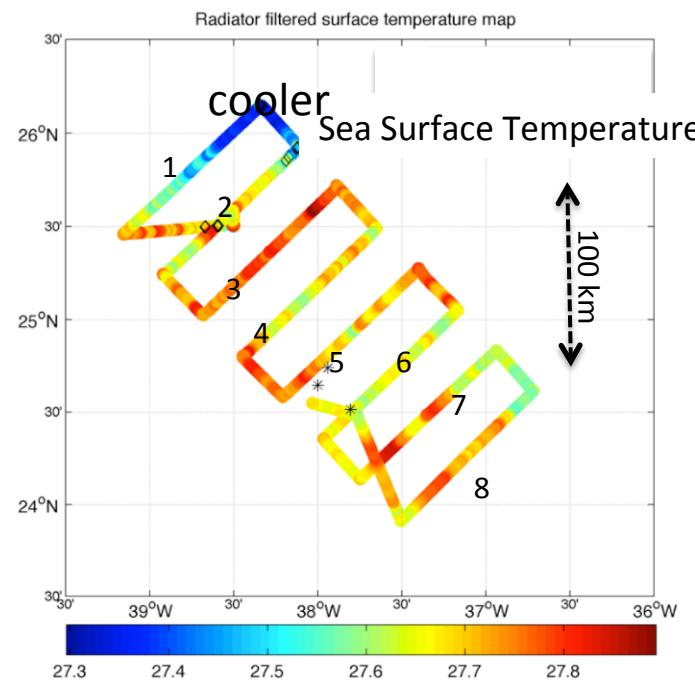
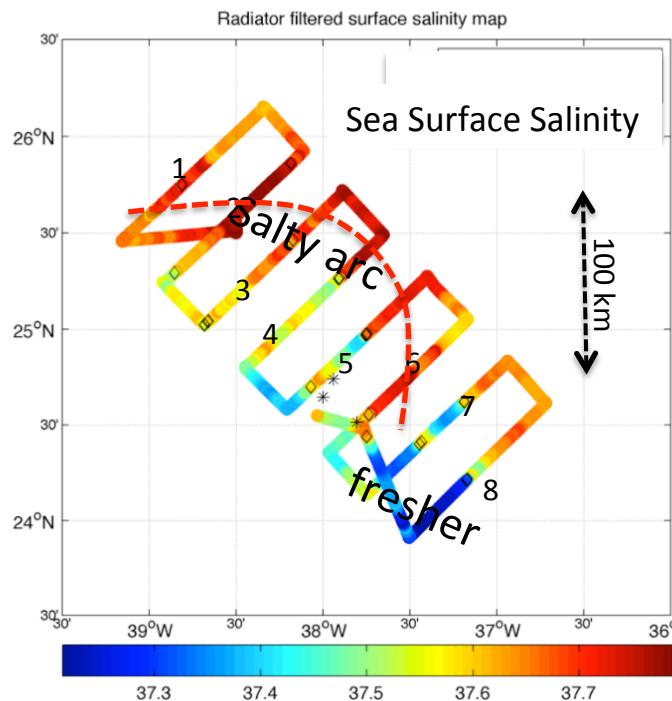
Salinities [VOS] in box: 18-31N;23-53W

SPURS in the Seasonality setting
[data fm VOS]

SSS Color coded vectors of current 11-51 m (mixed layer)

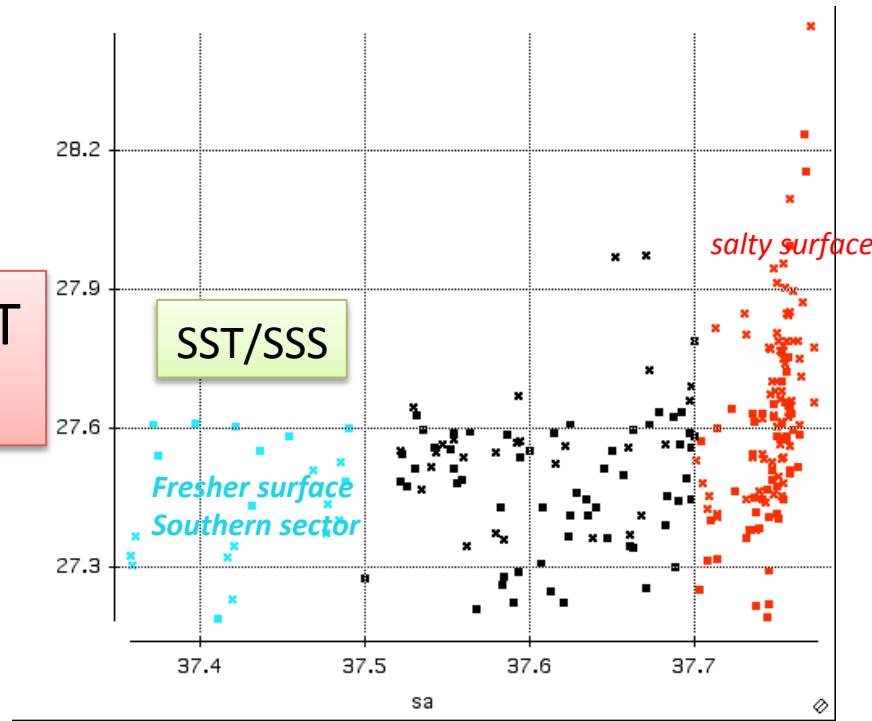


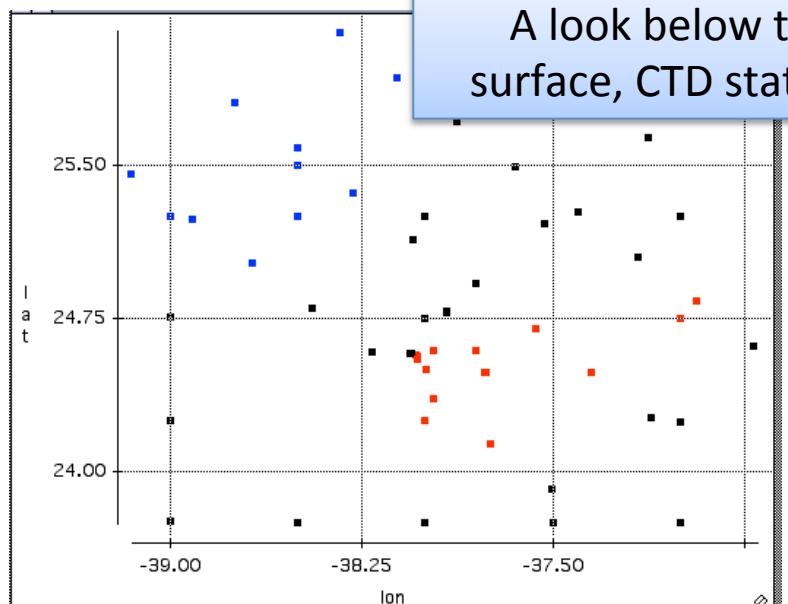
Dates of the **radiator**:
 30 sept 2012 08:00
 To
 04 oct 2012 0:00
 ~4 days grid



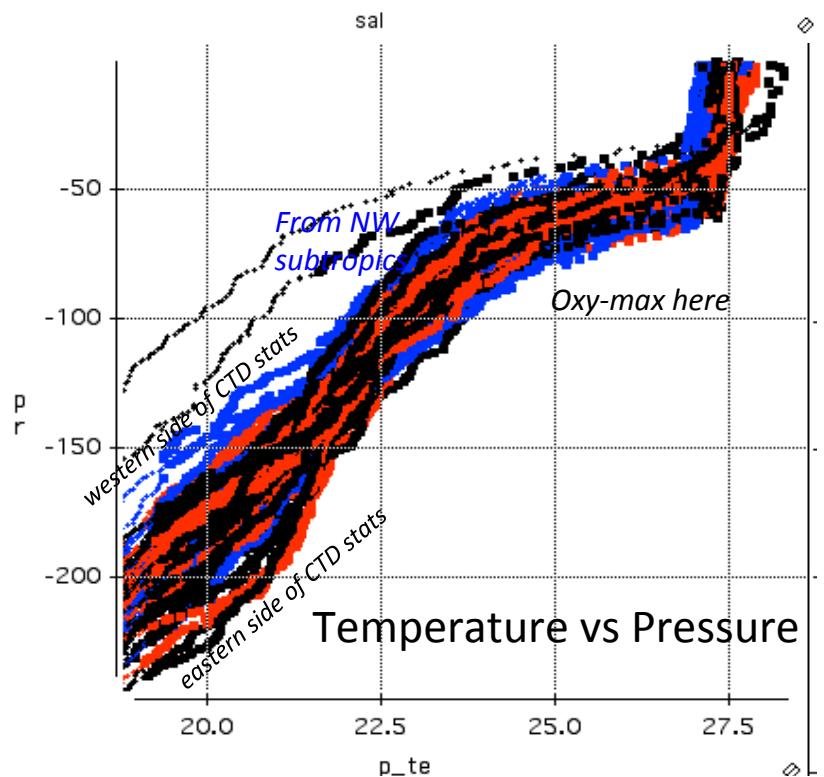
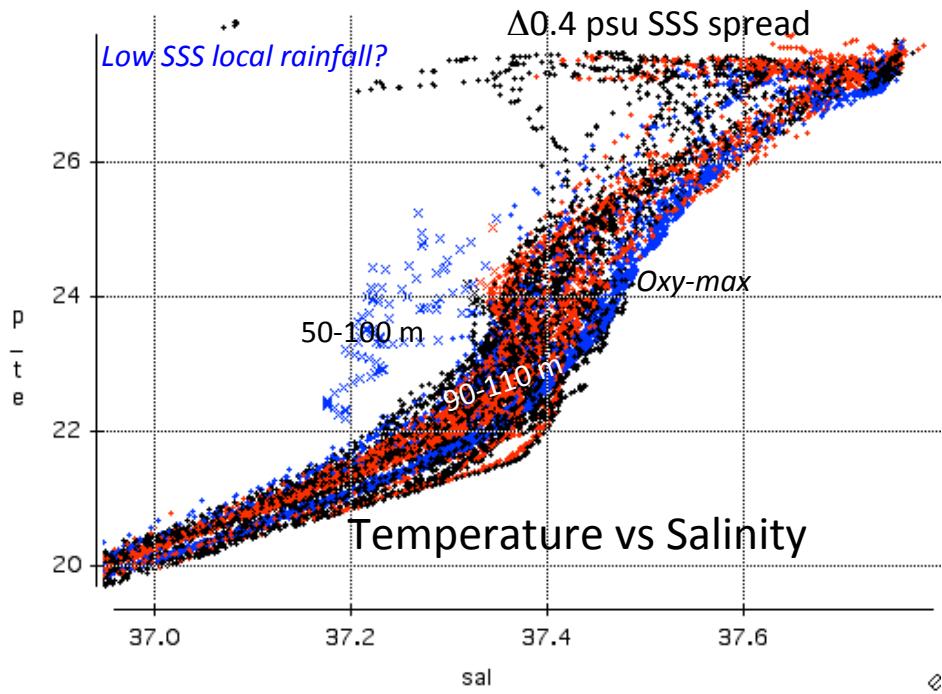
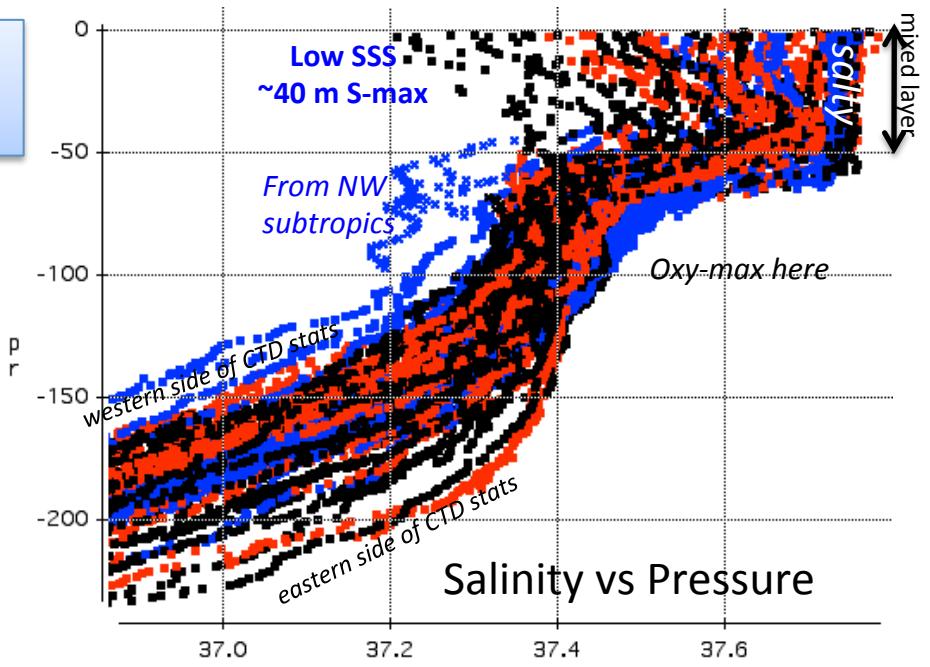
Underway SST and SSS

$\Delta 0.4$ SSS and $\Delta 0.5^{\circ}\text{C}$ SST
across the radiator grid

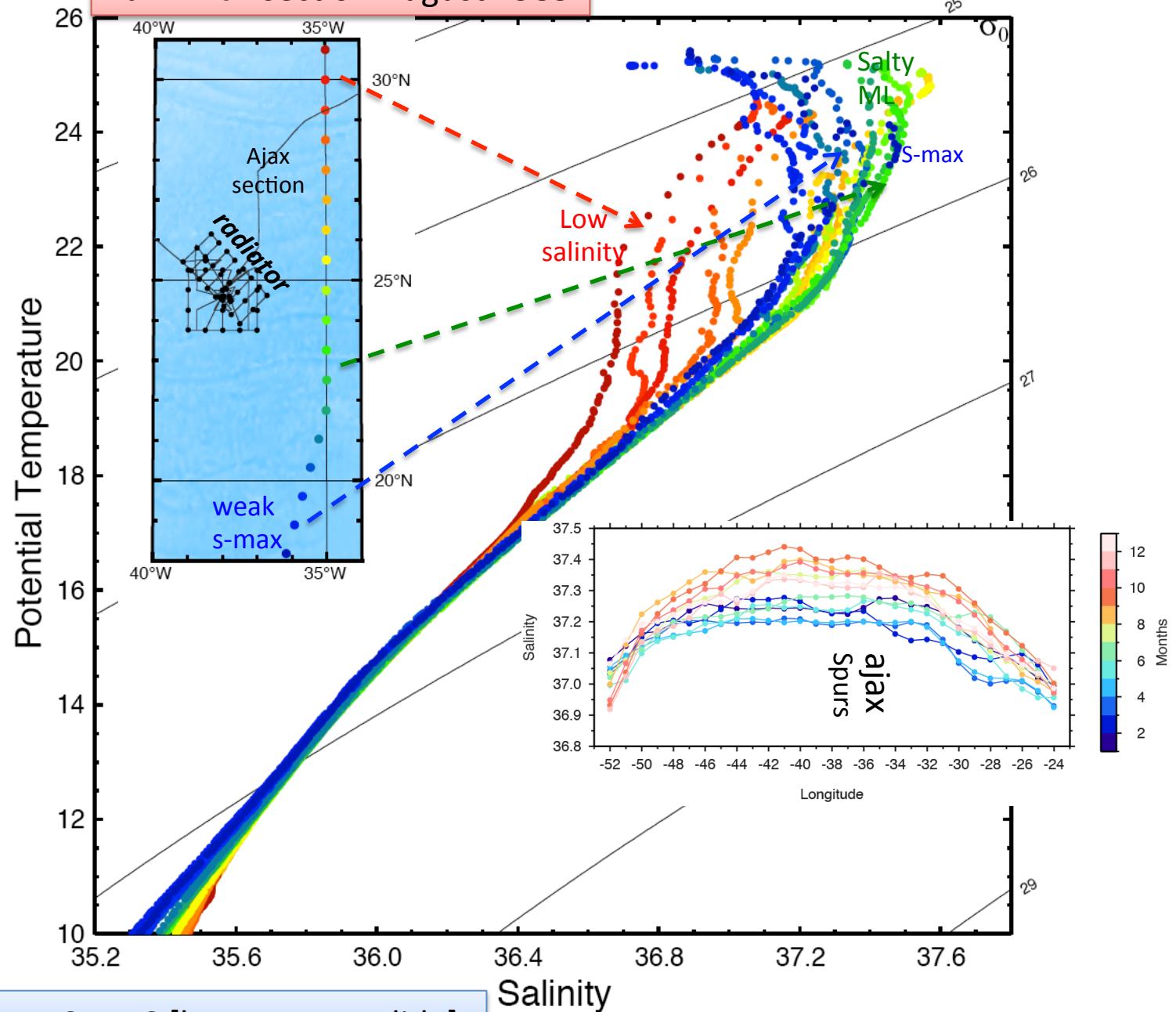




A look below the surface, CTD stations

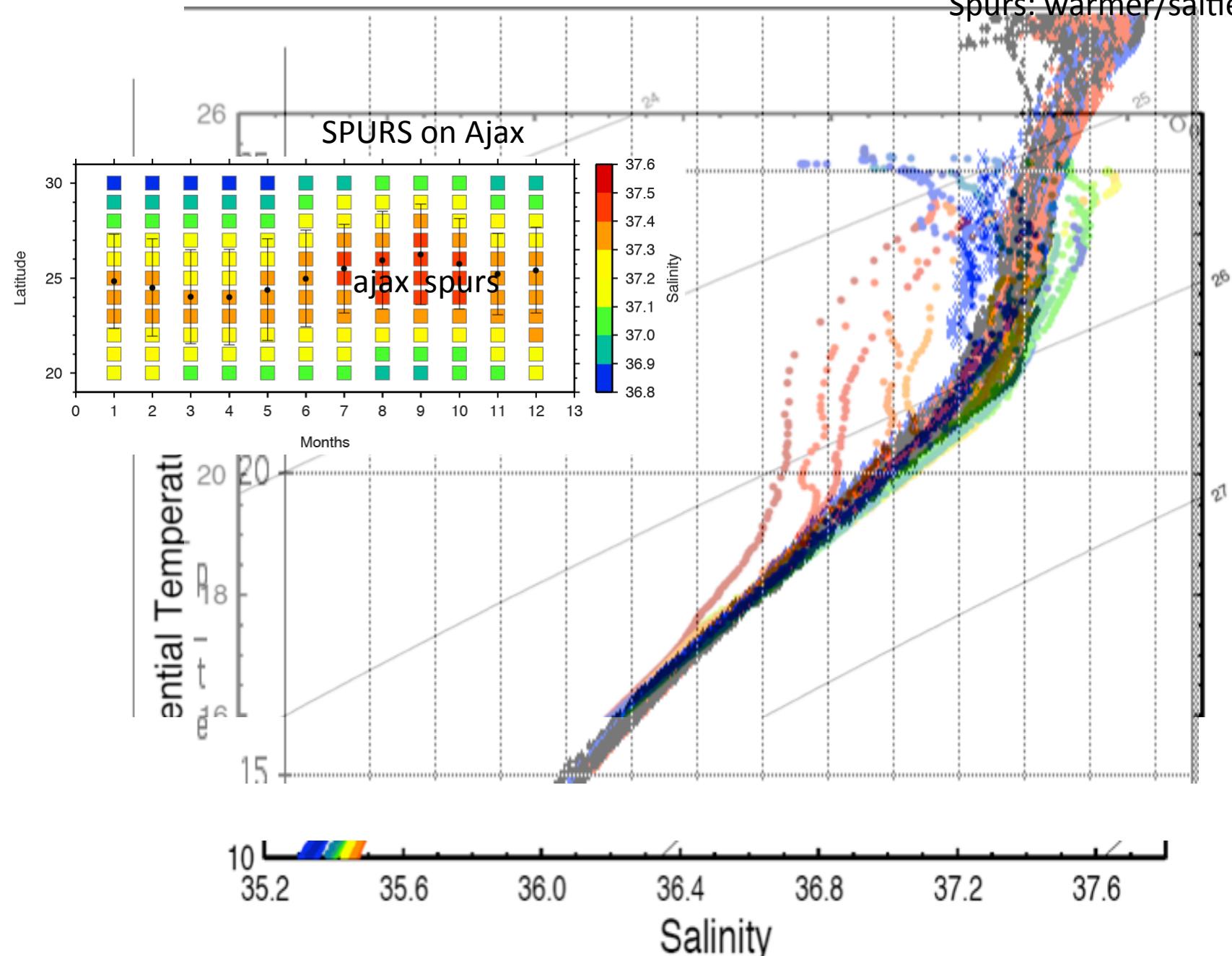


AJAX Knorr section August 1983

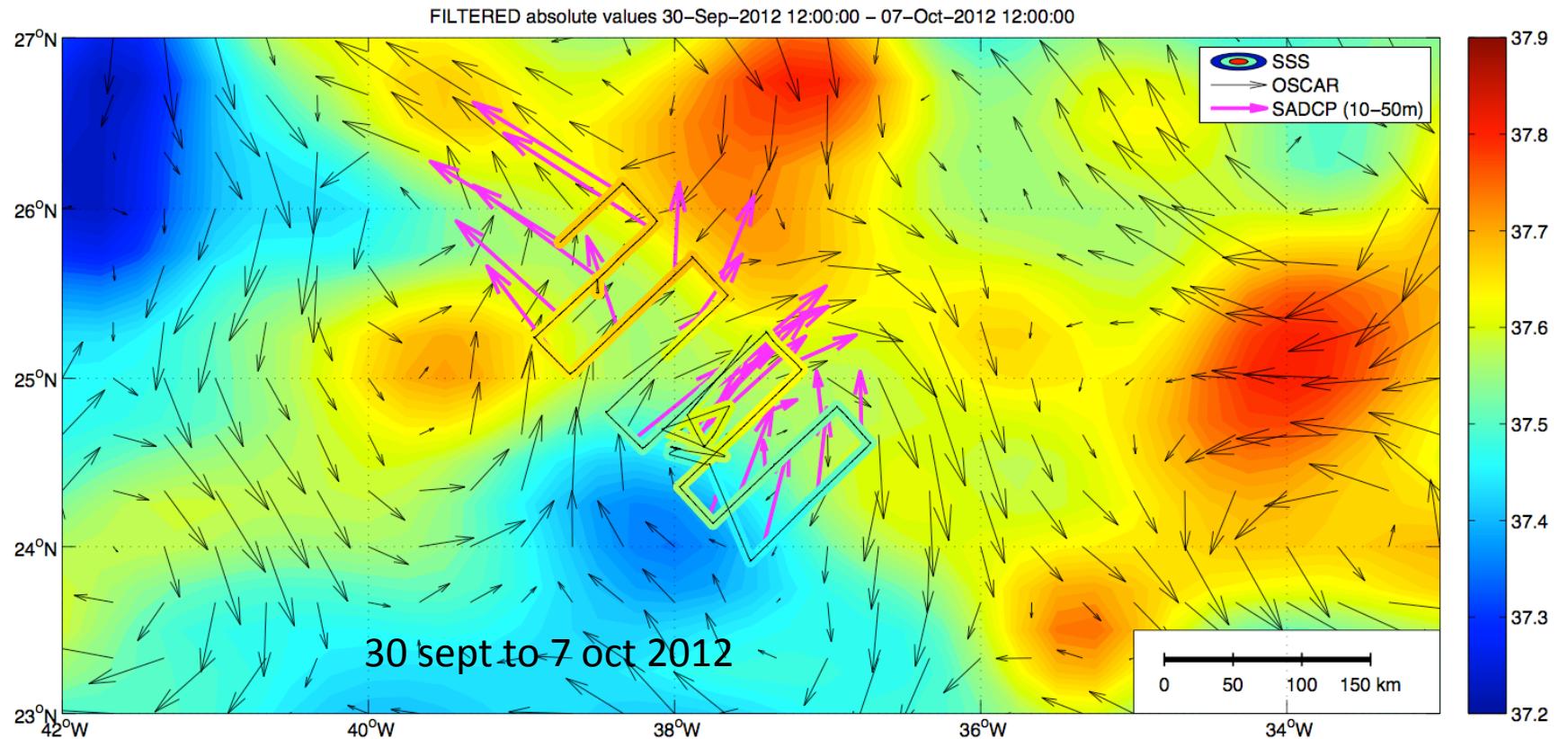


Similar T/S form as SPURS [but see next slide]

Spurs: warmer/saltier



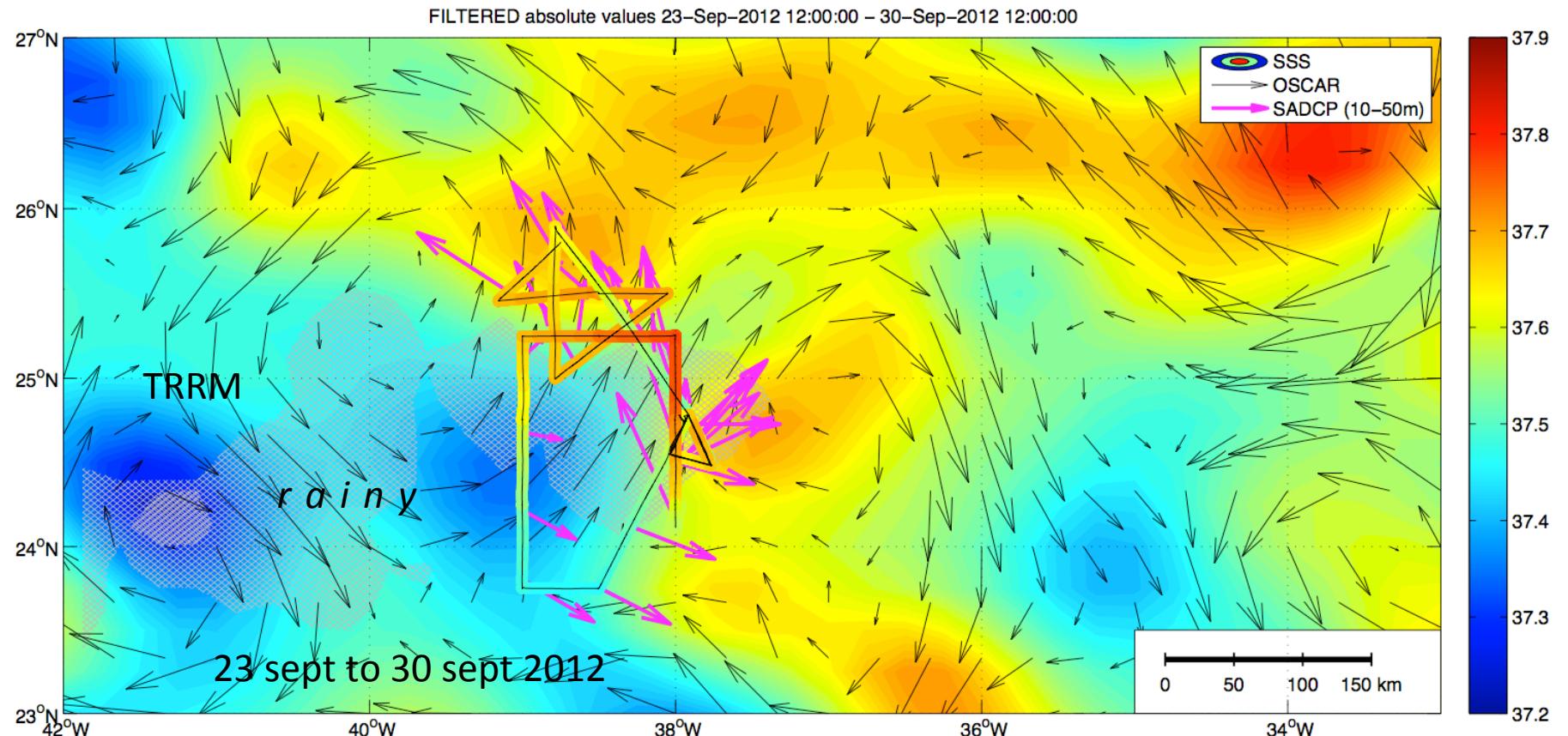
Radiator underway SSS (color coded track) and ADCP (purple arrows), Aquarius SSS (color pattern), Oscar currents (black arrows)



Aquarius: 7 day averages (Oleg Melnichenko)
 Oscar: average of two 5-day patterns
 Underway: 300 kHz, 1 day low-pass, 10-50 m, 50 km blocks; SSS ½ day low pass

SPURS Sept/Oct '12 cruise:
 § Swirls of salty and not so salty surface water *Good for both salty and fresh teams*
 § Start of the subsurface S-max

Are we seeing smearing of local rain induced low SSS patches or eddies from far away?
 Are we seeing submesoscale dynamics between these contrasting clumps?



Aquarius: 7 day averages (Oleg Melnichenko)
 Oscar: average of two 5-day patterns
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